FIG. 1

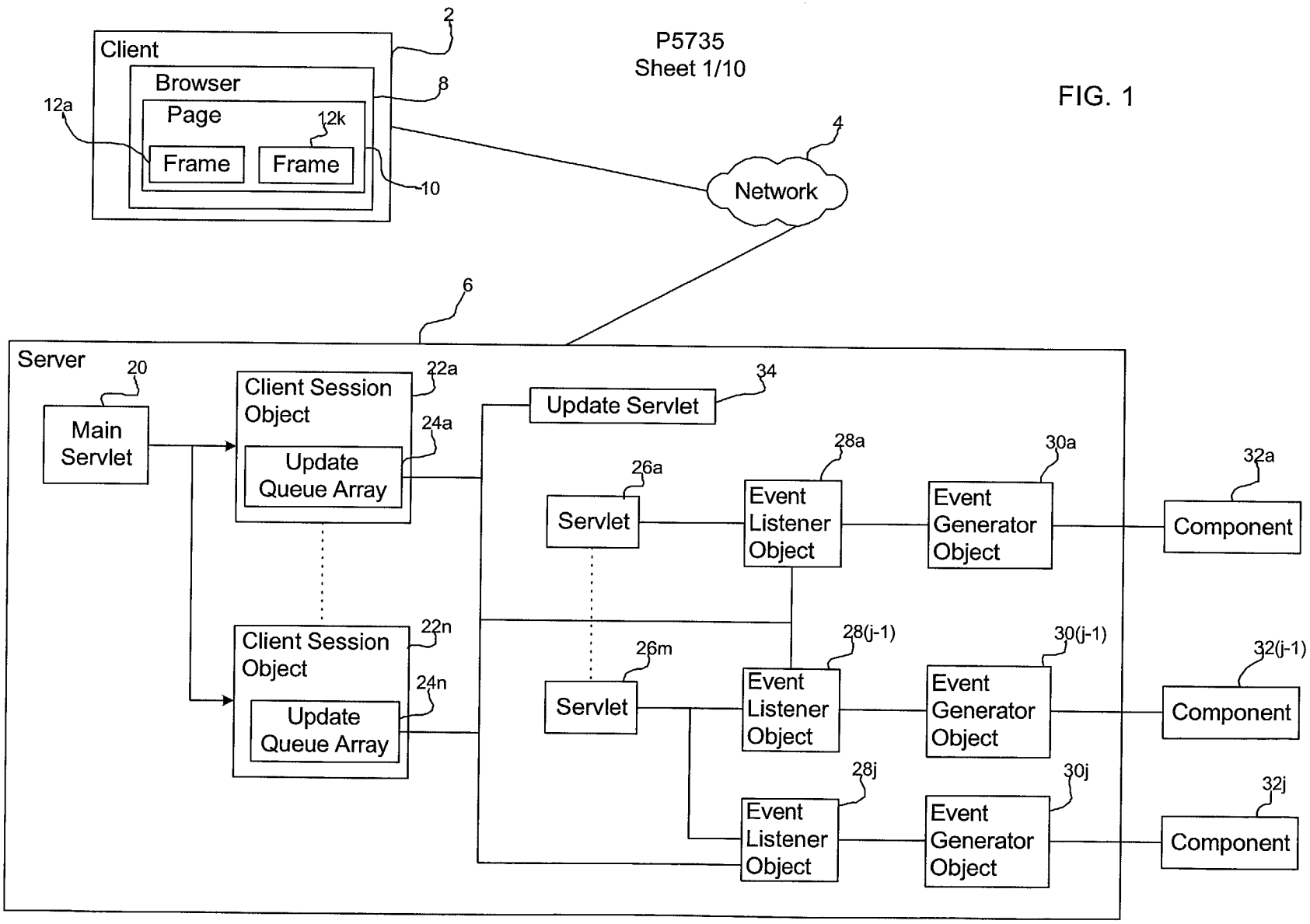

Client
2
Browser
8
Page
12a
12k
Frame
Frame
10
Network
4
6
Server
20
Main Servlet
Client Session Object
22a
Update Queue Array
24a
Update Servlet
34
Servlet
26a
Event Listener Object
28a
Event Generator Object
30a
Component
32a
Client Session Object
22n
Update Queue Array
24n
Servlet
26m
Event Listener Object
28(j-1)
Event Generator Object
30(j-1)
Component
32(j-1)
Event Listener Object
28j
Event Generator Object
30j
Component
32j

FIG. 2

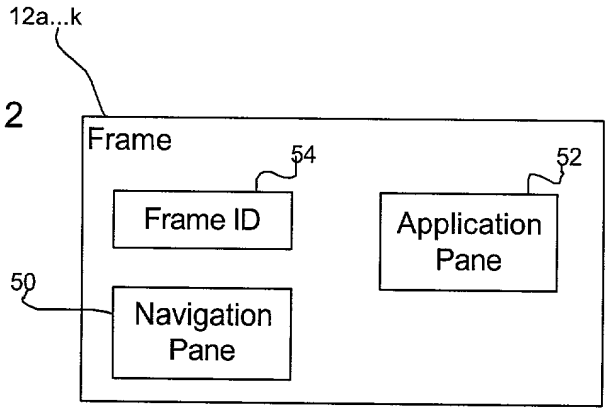


FIG. 3

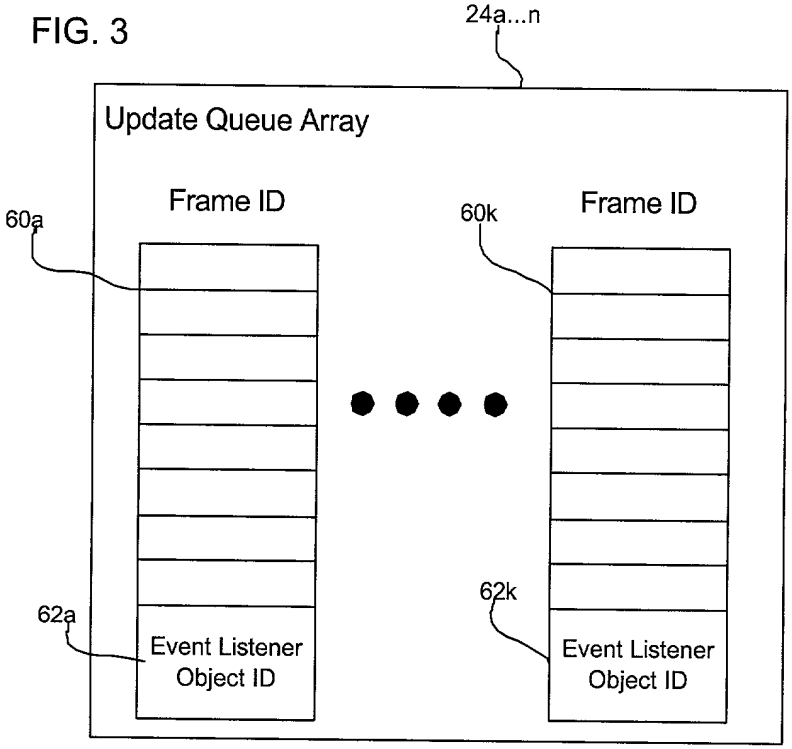


FIG. 4

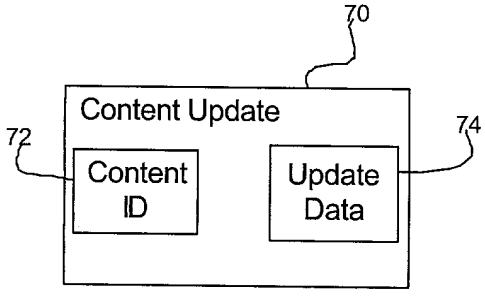


FIG. 5

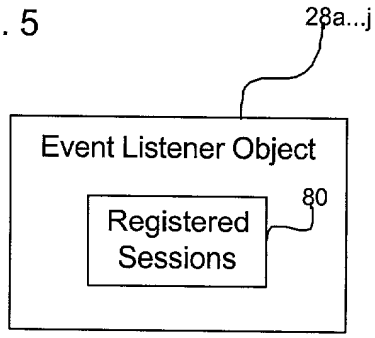


FIG. 6

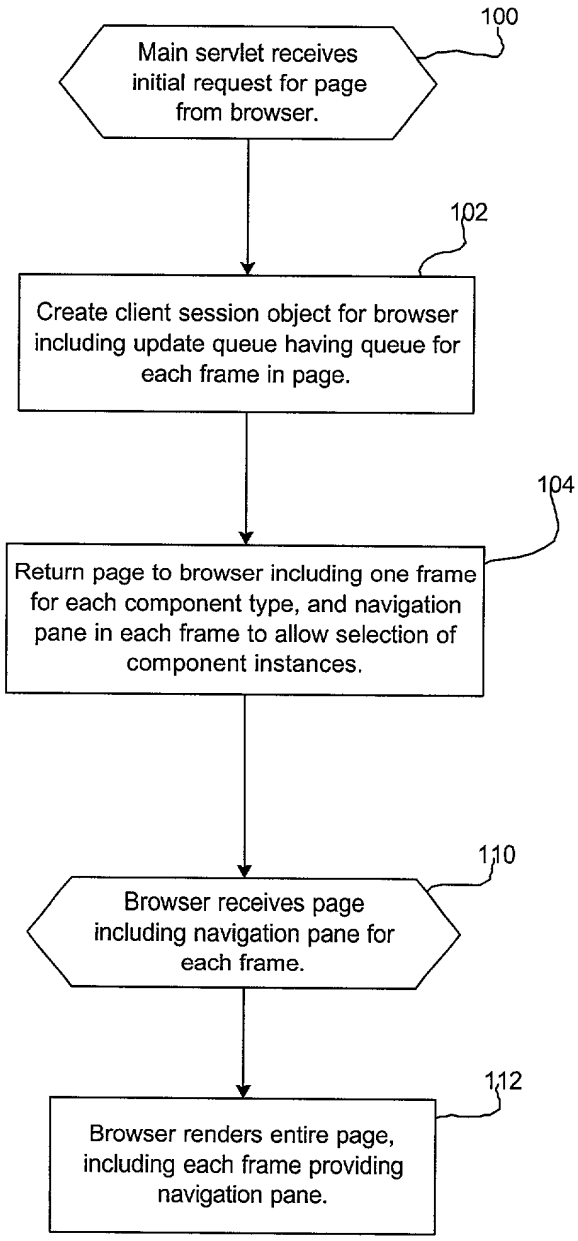

100
Main servlet receives initial request for page from browser.
102
Create client session object for browser including update queue having queue for each frame in page.
104
Return page to browser including one frame for each component type, and navigation pane in each frame to allow selection of component instances.
110
Browser receives page including navigation pane for each frame.
112
Browser renders entire page, including each frame providing navigation pane.

FIG. 7

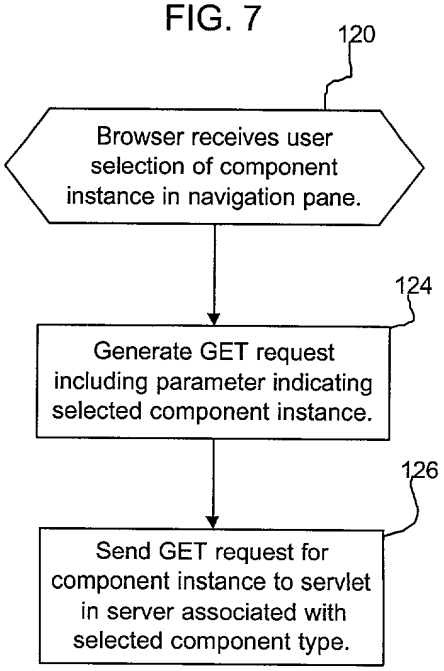
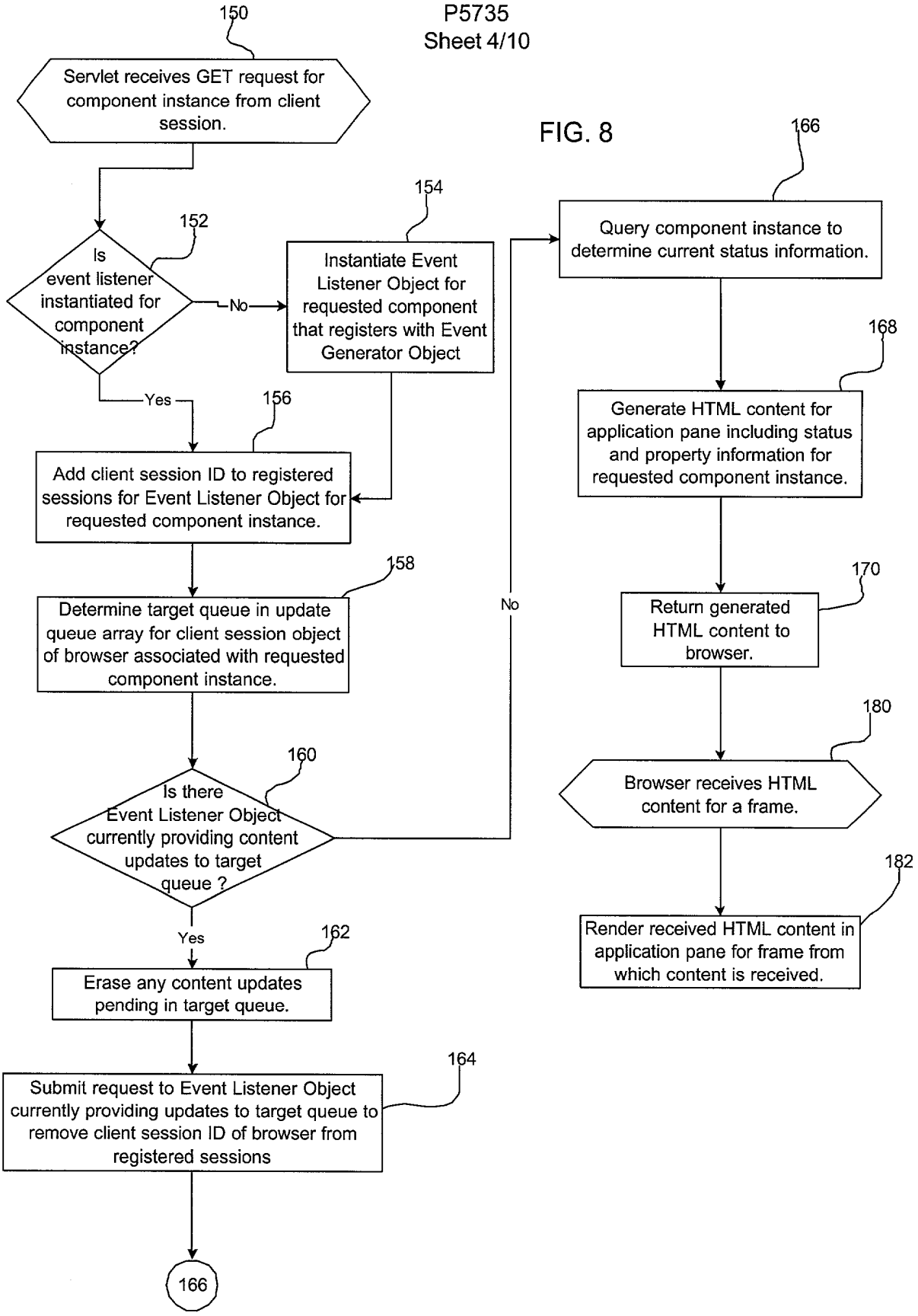

120
Browser receives user selection of component instance in navigation pane.
124
Generate GET request including parameter indicating selected component instance.
126
Send GET request for component instance to servlet in server associated with selected component type.

FIG. 8


150
Servlet receives GET request for component instance from client session.
152
Is event listener instantiated for component instance?
No
Yes
154
Instantiate Event Listener Object for requested component that registers with Event Generator Object
156
Add client session ID to registered sessions for Event Listener Object for requested component instance.
158
Determine target queue in update queue array for client session object of browser associated with requested component instance.
160
Is there Event Listener Object currently providing content updates to target queue ?
No
Yes
162
Erase any content updates pending in target queue.
164
Submit request to Event Listener Object currently providing updates to target queue to remove client session ID of browser from registered sessions
166
166
Query component instance to determine current status information.
168
Generate HTML content for application pane including status and property information for requested component instance.
170
Return generated HTML content to browser.
180
Browser receives HTML content for a frame.
182
Render received HTML content in application pane for frame from which content is received.

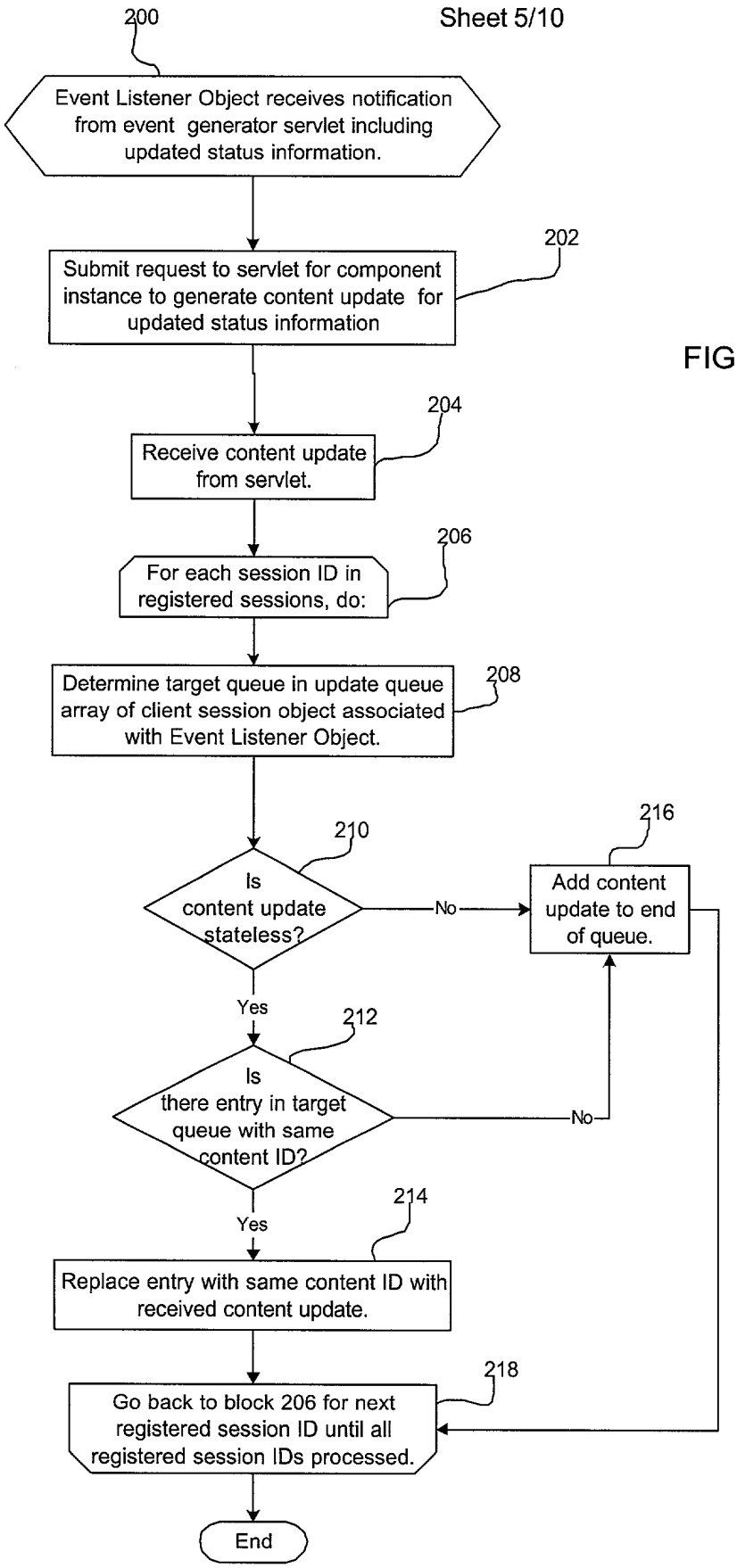

200
Event Listener Object receives notification from event generator servlet including updated status information.
202
Submit request to servlet for component instance to generate content update for updated status information
204
Receive content update from servlet.
206
For each session ID in registered sessions, do:
208
Determine target queue in update queue array of client session object associated with Event Listener Object.
210
Is content update stateless?
No
216
Add content update to end of queue.
Yes
212
Is there entry in target queue with same content ID?
No
Yes
214
Replace entry with same content ID with received content update.
218
Go back to block 206 for next registered session ID until all registered session IDs processed.
End

FIG. 9

FIG. 10

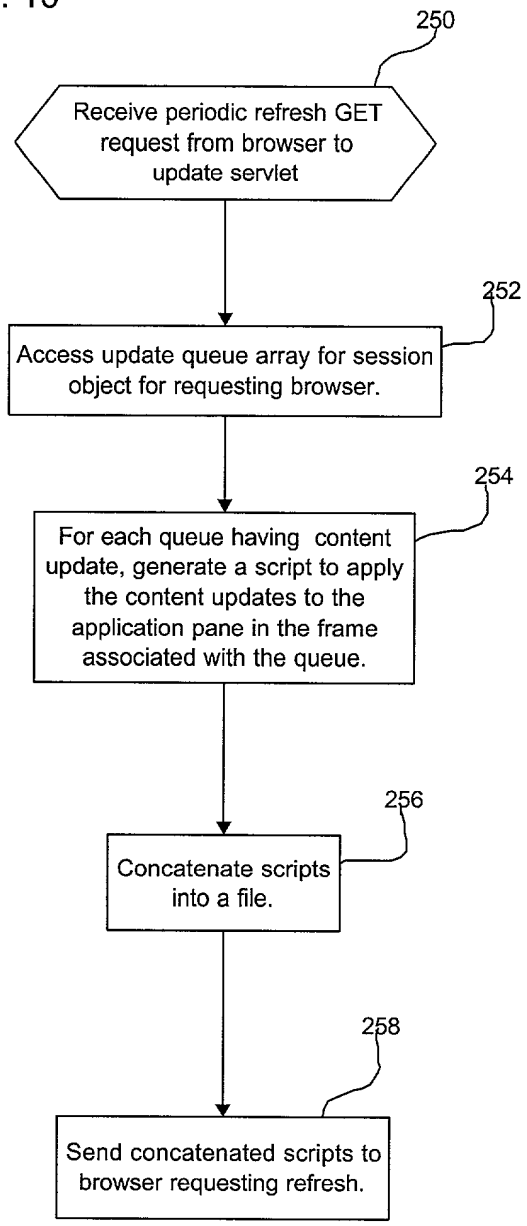

250
Receive periodic refresh GET request from browser to update servlet
252
Access update queue array for session object for requesting browser.
254
For each queue having content update, generate a script to apply the content updates to the application pane in the frame associated with the queue.
256
Concatenate scripts into a file.
258
Send concatenated scripts to browser requesting refresh.

FIG. 11

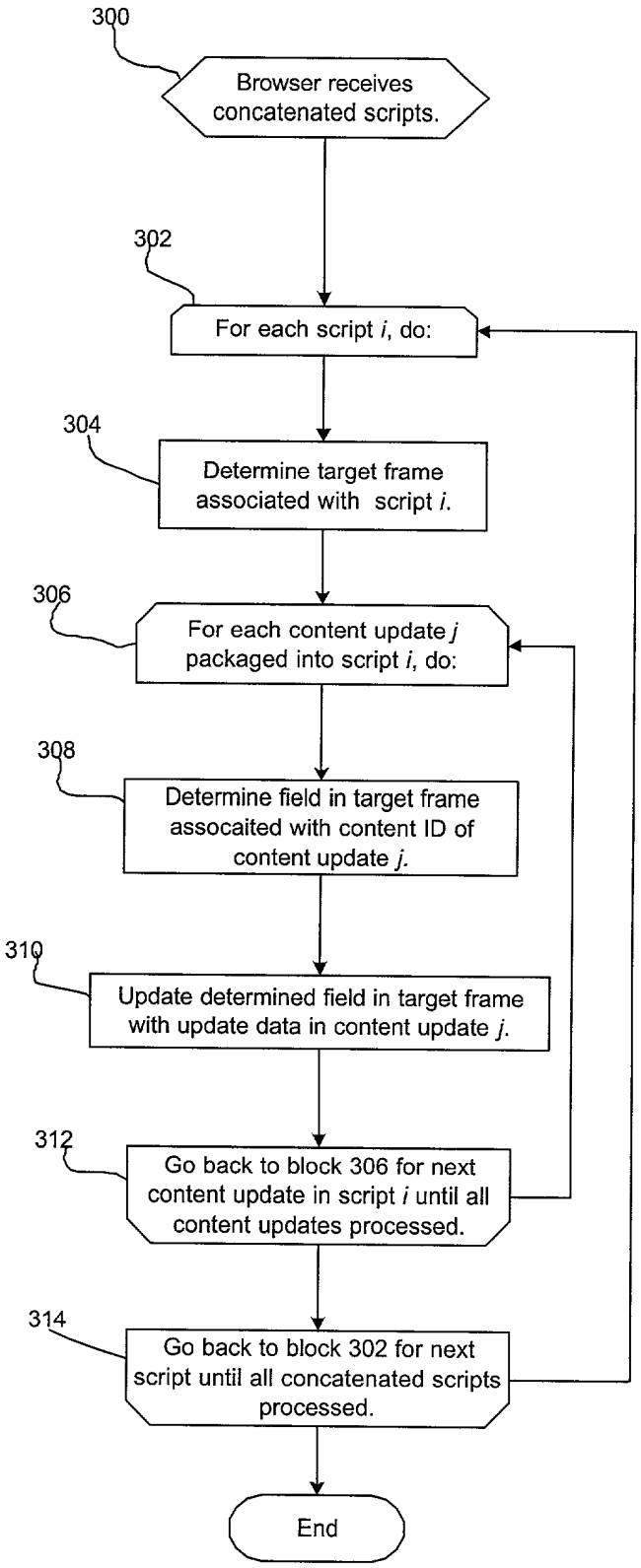

300
Browser receives concatenated scripts.
302
For each script i, do:
304
Determine target frame associated with script i.
306
For each content update j packaged into script i, do:
308
Determine field in target frame assocaited with content ID of content update j.
310
Update determined field in target frame with update data in content update j.
312
Go back to block 306 for next content update in script i until all content updates processed.
314
Go back to block 302 for next script until all concatenated scripts processed.
End

FIG. 12

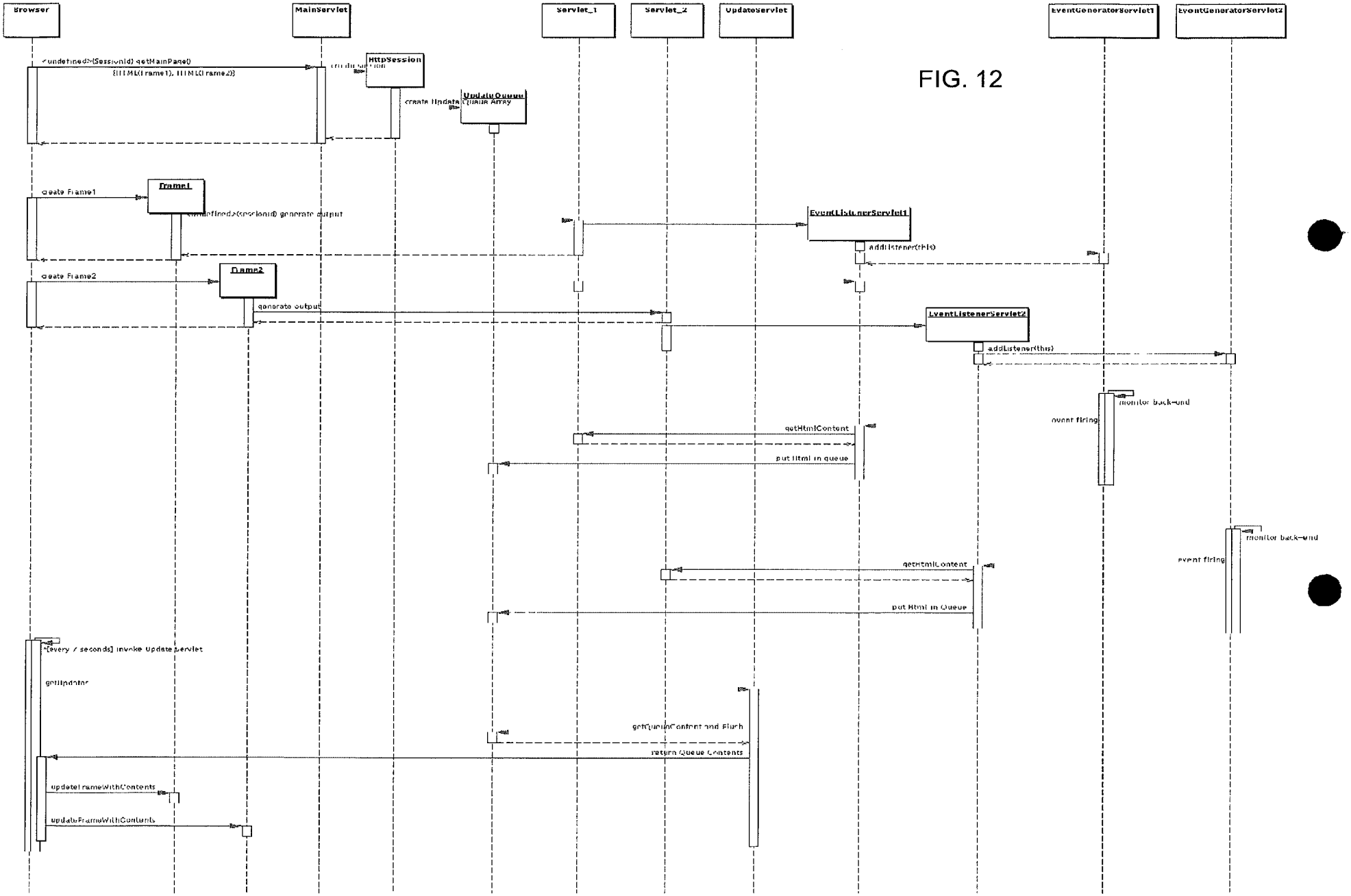

Browser
MainServlet
Servlet_1
Servlet_2
UpdateServlet
EventGeneratorServlet1
EventGeneratorServlet2
HttpSession
UpdateQueues
Frame1
Frame2
EventListenerServlet1
EventListenerServlet2
<undefined>(SessionId) getMainPage()
{{{HTML(Frame1), {{{HTML(Frame2)}}
create Frame1
create Frame2
generate output
addListener(this)
monitor back-end
event firing
getHtmlContent
put Html in queue
[every x seconds] invoke UpdateServlet
getUpdates
getQueueContent and Flush
return Queue Contents
updateFrameWithContents

FIG. 13

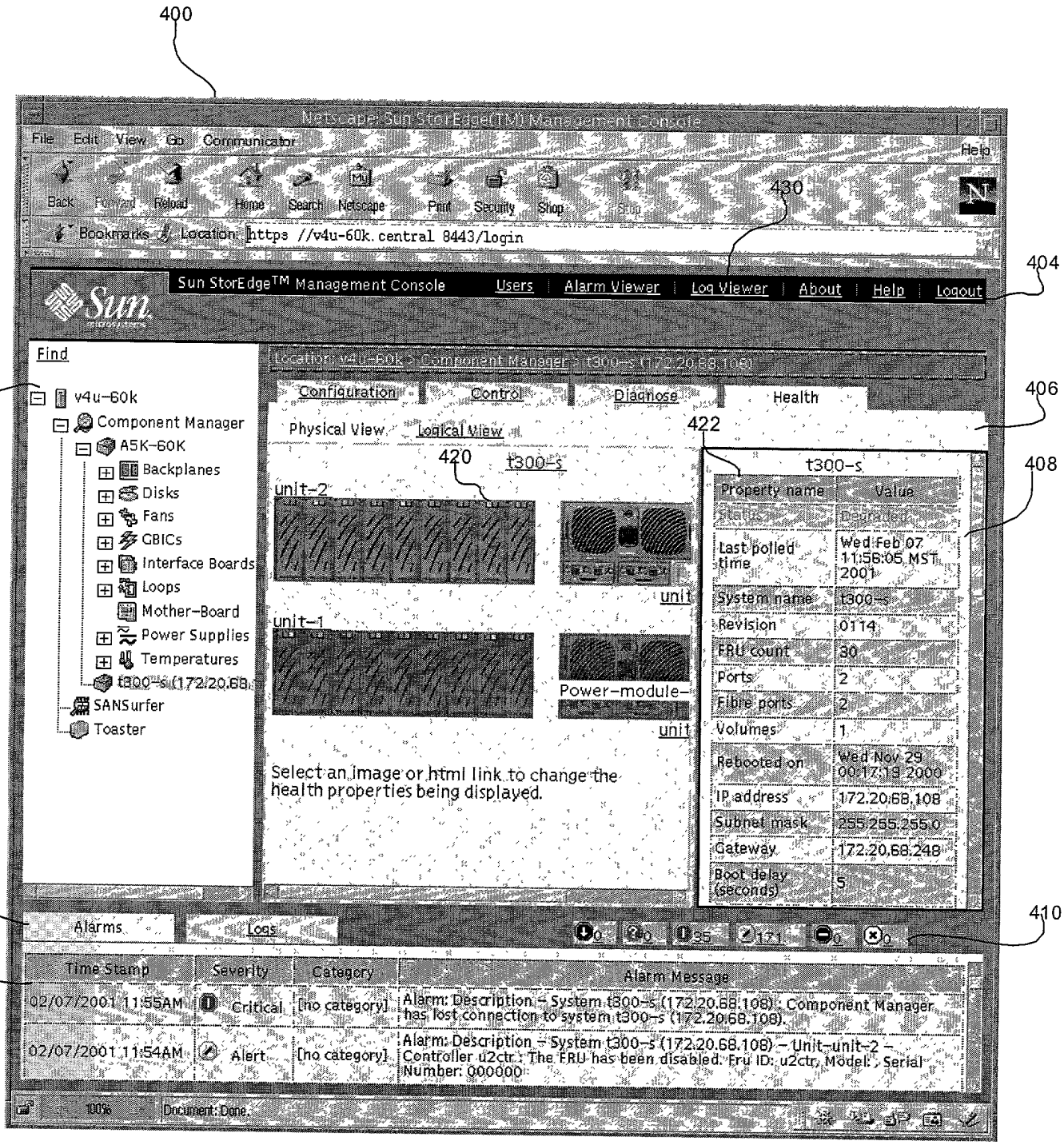
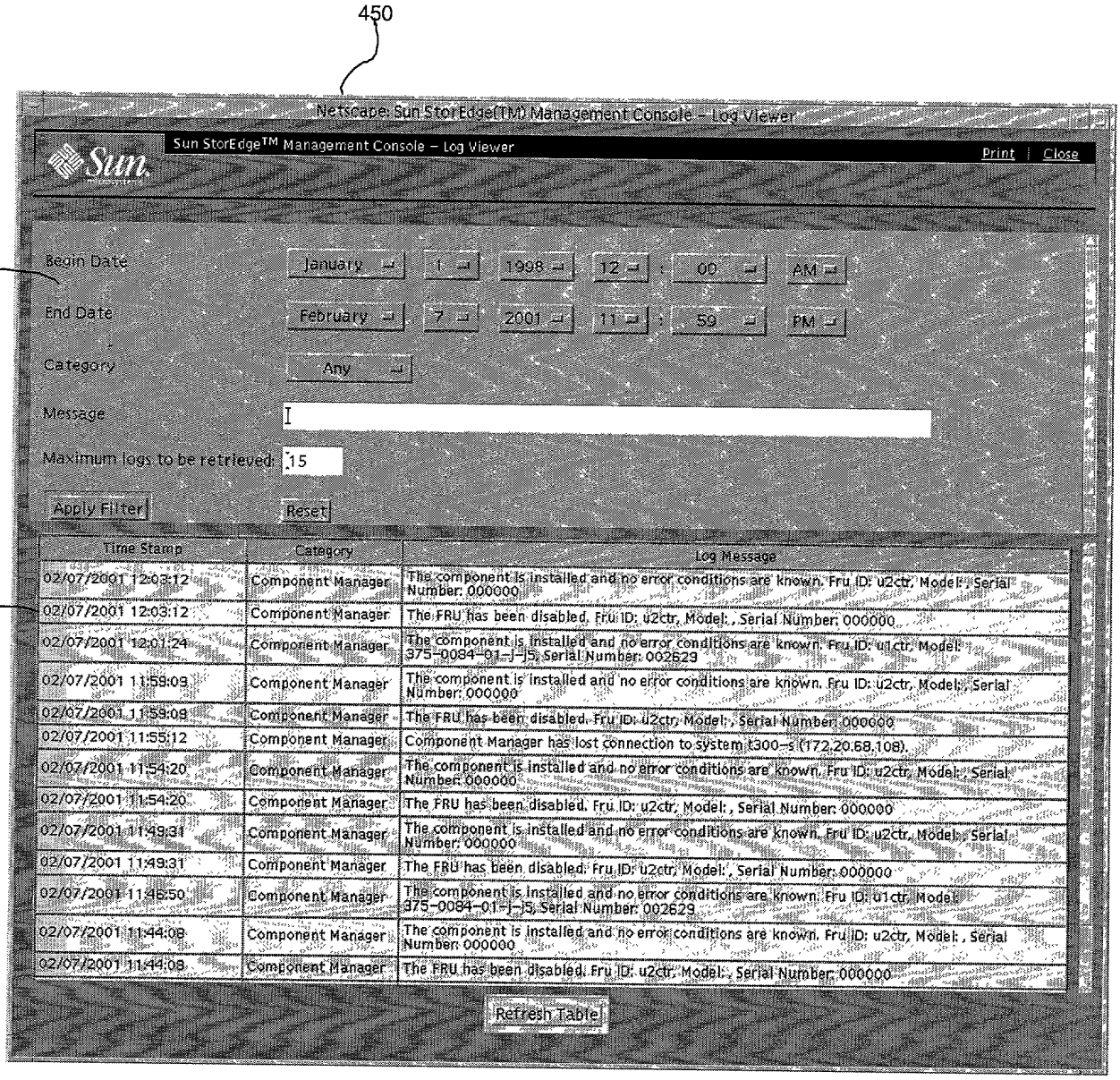

400
430
404
402
406
422
420
408
412
410
414
Netscape: Sun StorEdge(TM) Management Console
File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Shop Stop
Bookmarks Location: https //v4u-60k.central 8443/login
Sun StorEdge™ Management Console
Users
Alarm Viewer
Log Viewer
About
Help
Logout
Find
v4u-60k
Component Manager
A5K-60K
Backplanes
Disks
Fans
GBICs
Interface Boards
Loops
Mother-Board
Power Supplies
Temperatures
t300-s (172.20.68.
SANSurfer
Toaster
Location: v4u-60k > Component Manager > t300-s (172.20.68.108)
Configuration
Control
Diagnose
Health
Physical View
Logical View
t300-s
unit-2
unit
unit-1
Power-module-
unit
Select an image or html link to change the health properties being displayed.
t300-s
Property name
Value
Status
Degraded
Last polled time
Wed Feb 07 11:56:05 MST 2001
System name
t300-s
Revision
0114
FRU count
30
Ports
2
Fibre ports
2
Volumes
1
Rebooted on
Wed Nov 29 00:17:19 2000
IP address
172.20.68.108
Subnet mask
255.255.255.0
Gateway
172.20.68.248
Boot delay (seconds)
5
Alarms
Logs
0
0
35
171
0
0
Time Stamp
Severity
Category
Alarm Message
02/07/2001 11:55AM
Critical
[no category]
Alarm: Description – System t300-s (172.20.68.108) – Component Manager has lost connection to system t300-s (172.20.68.108).
02/07/2001 11:54AM
Alert
[no category]
Alarm: Description – System t300-s (172.20.68.108) – Unit-unit-2 – Controller u2ctr : The FRU has been disabled. Fru ID: u2ctr, Model: , Serial Number: 000000
100%
Document: Done.

FIG. 14


450
Netscape: Sun StorEdge(TM) Management Console – Log Viewer
Sun StorEdge™ Management Console – Log Viewer
Print | Close
452
Begin Date
January 1 1998 12 : 00 AM
End Date
February 7 2001 11 : 59 PM
Category
Any
Message
Maximum logs to be retrieved: 15
Apply Filter
Reset
454
Time Stamp
Category
Log Message
02/07/2001 12:03:12 Component Manager The component is installed and no error conditions are known. Fru ID: u2ctr, Model: , Serial Number: 000000
02/07/2001 12:03:12 Component Manager The FRU has been disabled. Fru ID: u2ctr, Model: , Serial Number: 000000
02/07/2001 12:01:24 Component Manager The component is installed and no error conditions are known. Fru ID: u1ctr, Model: 375-0084-01-J-J5, Serial Number: 002629
02/07/2001 11:59:09 Component Manager The component is installed and no error conditions are known. Fru ID: u2ctr, Model: , Serial Number: 000000
02/07/2001 11:59:09 Component Manager The FRU has been disabled. Fru ID: u2ctr, Model: , Serial Number: 000000
02/07/2001 11:55:12 Component Manager Component Manager has lost connection to system t300-s (172.20.68.108).
02/07/2001 11:54:20 Component Manager The component is installed and no error conditions are known. Fru ID: u2ctr, Model: , Serial Number: 000000
02/07/2001 11:54:20 Component Manager The FRU has been disabled. Fru ID: u2ctr, Model: , Serial Number: 000000
02/07/2001 11:49:31 Component Manager The component is installed and no error conditions are known. Fru ID: u2ctr, Model: , Serial Number: 000000
02/07/2001 11:49:31 Component Manager The FRU has been disabled. Fru ID: u2ctr, Model: , Serial Number: 000000
02/07/2001 11:46:50 Component Manager The component is installed and no error conditions are known. Fru ID: u1ctr, Model: 375-0084-01-J-J5, Serial Number: 002629
02/07/2001 11:44:08 Component Manager The component is installed and no error conditions are known. Fru ID: u2ctr, Model: , Serial Number: 000000
02/07/2001 11:44:08 Component Manager The FRU has been disabled. Fru ID: u2ctr, Model: , Serial Number: 000000
Refresh Table